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SCALP DANCE CEREMONY OF SANTA CLARA INDIANS

SEXUAL DIFFERENCES OF CRANIAL AND FACIAL INDICES IN UNDEFORMED PRE-HISTORIC INDIAN SKULLS

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Introduction,

While measuring and studying some prehistoric Indian skulls, differences of indices and averages so often appeared that it seemed interesting to group them for comparison. It happened many a time that the variations were consistent, meaning that all the series showed a difference of the same kind for the character considered, say for instance in favor of the females; other times the fluctuations of indices were in one group positive, in another negative and so no conclusion could be drawn with certainty. Again, some variations are normal and expected, they have been found in other types or races and several have been explained by anatomists. But, in other cases, no clear nor plausible explanation was obvious. So, without commenting further on these sexual variations, I shall merely present here the actual fluctuations by series and regions, from male to female groups, as found by means of the craniometric method and translated in terms of index and average differences.

But, first, it may be well to say a few words about the crania used as material for this study. They are all of the so-called Basket Maker type from the Ameri-

can Southwest or similar groups from Santa Barbara (Calif.) and Coahuila (Mexico). Part of these I have measured personally; the measurements of others I obtained thru the kindness of Dr. Hooton of Harvard. All these represent the North American series. For sake of comparison I also took from the anthropological literature the measurements of the skulls of the famous Lagoa Santa type as found in the Paltacalo series (Ecuador) of Rivet, the Tunebo skull (Columbia) studied by Verneau, the Punin calvarium (Ecuador) presented by Sullivan and Hellman. All these crania have a great many features and proportions in common and I am convinced that they belong to the same ethnic type together with many others from both North and South America not considered here at present altho I often indicate the general average of the whole series from both continents. Hence the comparison of the indices and averages of the males and females of these groups of various origins is fair and proper.

The principal indices, cranial, facial, nasal, orbital, etc., will be successively considered. They have been obtained according to the usual technique and so are comparable. None of these skulls was artificially deformed, as is the frequent case for some tribes of Ecuador and Peru and generally among the Pueblos-Cliff Dwellers. All differences will be considered in regard to the females, that is to say, when the index or averages of the women of a series will be higher than for the men it will be called positive and contrarywise negative.

Part I—Cranial Indices

1—*Horizontal Index.*

Let us begin with the horizontal cephalic or cranial

index, expressing the ratio of the maximum length and breadth diameters of the skull.

The average index for 365 crania from North America is 76.34 or subdolichocephalic. Now if we consider the index of the men and that of the women, respectively 75.85 for 204 male subjects and 77.59 for 153 females, we find a positive difference of 1.74 in favor of the latter; the skulls of doubtful sex determination being left out. In other words, the males, as a rule, have a head slightly longer than the females, in proportion to the breadth. This general difference is quite consistent, that is to say, is found in practically all local groups.

From Colorado and New Mexico we have only female skulls, hence no comparison possible, but the three small series from Arizona give 75.55 for 8 men and 77.10 for 6 women or a positive difference of 1.55. The large Californian group, measured by Lucien Carr, shows 76 for 178 males and 77.7 for 137 females, another positive variation of 1.70. These two sexual differences approximate the one already given for the Northern Continent, 1.74. The Mexican series from Coahuila exceeds much this fluctuation, 18 men 74.61 and 3 women 78.46 or 3.85 in favor of the female group.

In Ecuador we find the 11 men from Paltacalo with a mean index of 71, and 4 women 70.22. So, here the case is reversed and we see a negative difference of 1.21. But if we add to this series the Punin female also from Ecuador and the Tunebo male from Columbia, we have now for this Northwestern district of South America a positive variation of 0.37, small but in the same direction as the difference from North America.

In conclusion we may say that, altho weak, the sexual difference detected in the comparison of the horizontal cephalic indices of the male and female series is clearly

enough in favor of the women. This means that on the whole they have heads relatively shorter or broader than the men of the same type, practically in all localities and especially in Mexico, where the difference is + 3.85 and in Northeastern Arizona + 3.53, in both places only the men having an average that could be qualified truly dolichocephalic.

2—*Height-Length Index.*

If we compare now the same maximum length diameter to the skull height measured from basion to bregma, we obtain the vertico-length index. The general mean index for 513 crania from both continents is 73.31 or orthocephalic, that is to say, of medium elevation in regard to length. The same index for skulls exclusively from North America is 72.58, showing an excessively small sexual difference of 0.36 in favor of the women, 204 males having an average index of 72.54 against 72.90 for 152 female subjects. This positive difference is still weaker for the Santa Barbara series + 0.2; larger but still less than a point for Arizona + 0.61. A nearly equal but negative difference is seen for the Ecuadorian series from Paltacalo — 0.70. The fluctuation of indices increases in favor of the women if we consider the Mexican group from Coahuila where 8 males have a mean index of 73.3 and 12 females 74.93 or a positive difference of 1.63. The whole Southwest shows a variation of similar nature and size + 1.56 in favor of women. In Northeastern Arizona the difference still increases, reaching + 1.82.

In résumé we may say that in all cases the difference is small, never reaching even two points for any series, and in one case at least, Paltacalo, the variation is negative. For all other groups it is positive, but not very significant. When positive it means that the women,

as almost everywhere, have, in general, heads slightly higher than the men in proportion to length. But as we have seen that their heads were somewhat shorter, we should naturally expect this concordant difference.

3— *Height-Breadth Index.*

The third cephalic or cranial index is called vertico-transverse as it expresses the relation of the maximum width of the head to its height. The general average index for 514 subjects of both sexes is 97.04, at the upper limit of mesaticephaly and corresponding to the condition of orthocephaly previously found. The mean index of North America is only 95.15 for 365 skulls, of which 204 belonged to males with an average of 95.94 and 152 to females whose mean index is 93.81. The sexual difference is then — 2.13 or negative. This was to be expected to counterbalance the two previous positive variations of 1.74 and 0.36 or + 2.10, the small discrepancy being due to neglected decimals and remainders of divisions.

The maximum difference in favor of the men is found in the Mexican series where the male subjects average 98.98, hysicephalic, and the females 95.5, mesaticephalic, hence — 3.48 for the Coahulia group. The large Californian series from Santa Barbara presents a smaller but clearly negative variation, 178 men averaging 95.6 and 137 women 93.3, or — 2.3. An equal difference is seen in the Northeastern Arizona groups, — 2.31.

The various series from the Southwest put together give for men 96.94 and for women 99.13, or a positive difference of 2.19, which seems contrary to the tendency previously noted of being in favor of the men. To clear up this point we must at once remark that the five subjects from Colorado, all female, are clearly hysicephalic, their minimum being 100.6 and maximum 109.58 with

a mean index of 104.45. This places them on the level of the Paltacalo women having also an index of 104.4 and for a fair comparison we must keep them apart from the other Southwestern females. These are only mesaticephalic with an index of 95.33 or some 10 points below their Colorado sisters. Averaging groups so different would not furnish us with a representative mean index. Now then we see a sexual variation of — 1.61, or in favor of the men, that is to say, concordant with similar differences found in other groups altho smaller. The meaning of these negative quantities is that the men of this ethnic type have, at least in the known series from North America, a head somewhat higher than the women, in regard to breadth of skull.

Again the Ecuadorian series seems to contradict this statement, for the men from Paltacalo average 103.54, while the women reach 104.4 or a positive variation of 0.86, small but in favor or the females. However, if we add to this group the Tunebo man from Columbia and the Punin skull, we have for the Northwestern district of South America respectively 103.62 for males and 102. 12 for females, that is to say, a negative difference of 1.50 almost as large as the one we found for the Southwest of North America, without Colorado. All these regional indices thus present a similar sexual difference in favor of the men.

Conclusion.

To sum up the results of our inquiry as to sexual differences concerning cranial or cephalic indices we found —1, that the women represented by the skulls from North America had heads somewhat shorter in proportion to breadth than the men, the variation being + 1.74 in their favor; 2—that the difference in regard to relation of height was also positive altho minute, + 0.36,

meaning that the female skulls were very slightly higher in proportion to length than the heads of the males; 3—that men have heads relatively higher in regard to breadth than the women, the difference being this time — 2.13, this negative quantity being practically equal to the sum of the two positive variations previously mentioned; these three sexual differences being of the same nature for all groups for the same index. Seldom reaching or exceeding three points for any local group, they may not manifest a wide divergence between sexual series, but for that reason also they suggest a relatively uniform type rather free from foreign admixture.

4—*Capacity.*

The average capacity of 475 crania of both sexes from the two Americas is 1356 ccm. The South American series, comprising 114 skulls of which the majority is masculine, reaches a mean volume of 1470 ccm., while the 361 North American skulls have only 1320 ccm., a small average.

In Arizona we find 8 men averaging 1417 ccm., and 6 women 1249 ccm., or a difference of 168 ccm. But the small capacity of the female crania from Colorado and New Mexico lower that difference to 159 ccm. for the whole Southwest. In California the difference is smaller yet, 124 ccm. between 178 males measuring 1372 ccm., and 137 females 1248 ccm. The smallest sexual variation of all local groups is shown in the Mexican series; 15 men have a mean capacity of 1393 ccm. while 3 women 1338 ccm., or only 55 ccm. difference. The average difference for the known series of North America is about 126 ccm.; while it is 132 ccm. for the Ecuadorian group, as 7 Paltacalo males measure 1425 ccm., and 3 females 1293 ccm., but this variation would reach 172 ccm. for the whole Northwest district of South America.

Then, everywhere as is normal and expected the capacity of the male skulls is superior to that of the female and all the male averages are higher than any of the female groups, regardless of origin.

If we compare the sexual difference of the local series to the volume of the women's skulls of the respective groups we find that the difference of capacity is only 4.11 % of the female cranial volume for Coahuila, 9.93 % for Santa Barbara and 13.45 % for Arizona, but only 10.2 % for Paltacalo. The percentage for these four series may give a better understanding of the relative differences.

The largest skulls are those of the three men from Cañon del Muerto averaging 1503 ccm., while the smallest are those of their four neighbors from Northwest Arizona, Kidder and Guernsey series, measuring only 1340 ccm. The largest female skulls are represented by the three Mexicans from Coahuila with 1338 ccm., and the smallest are the three Arizona women of the series above named with 1221 ccm., a low capacity.

The males from the Southwest are only 8 ccm. below the average of the Paltacalo men, but the women 37 ccm. inferior to the mean capacity of the Ecuadorian females. This reveals another aspect of the sexual difference by comparison.

Part II—Facial Indices

1—*Total Facial Index.*

The total facial index is obtained on the skull by comparing the height of the morphological face, or distance between nasion and menton, and the maximum breadth of the face or bizygomatic diameter. As relatively few crania are found with their mandibles the series brought here for study are unhappily very small

and so the meaning of the sexual differences detected is less significant.

The general average for the whole group is 86.61 or mesoprosopic. We have only 15 skulls for North America averaging 87.31, 10 male subjects have a mean index of 88.46 and so place themselves squarely in the mesoprosopic class, while 5 females reach only 84.99, at the limit of Chamaeprosopy. The sexual difference is then clearly negative, being 3.57 in favor of the men.

A similar variation is seen in the small series from Arizona found by Kidder and Guernsey, three men having an index of 87.13 and three women 84.03 or — 3.10 in favor of the former. Contrarywise, if we put together the three small groups from Arizona we have 83.62 for the males and 84.76 for females, or a positive difference of 1.14. In the same way if we consider all series from the Southwestern states the average for the men is 83.62 and for the women 84.99 or again a positive variation of 1.37 in favor of the latter.

What are we allowed to conclude from such apparently contradictory results? First, in spite of regional fluctuations, here positive, there negative, the final comparison for the whole series is large enough to have some value. It is — 3.57 or in favor of the men. This means that the males have a face, comprising the lower maxillary, longer, in general, than that of the women. This may be due to the greater size of their mandible.

As to a probable explanation in regard to variation of signs of local differences, we will remark that the series being excessively small, a single individual diverging from the proportions of the rest of the group may greatly influence the average and obscure the result. Second, some groups comprise either only females or only males and it is not altogether fair nor satisfactory to

throw them together and compare the averages. However, one will note that the two instances of positive differences were hardly in excess of one unit, while the differences in favor of the men amounted to more than three points and so, more than outbalanced the others. Finally, since the difference of the whole series is one of these larger and negative variations, it is sufficient to allow at least a cautious conclusion such as given above.

2—*Upper Facial Index.*

This index is again a comparison of the bizygomatic diameter or maximum breadth of face but now with the height of the upper facial part measured from nasion to prosthion. The general index for the whole series of 288 skulls is 52.79 or mesoprosopic and so corresponding to the total facial index and belonging to the same class.

In practically all local groups in North America we find a negative difference in comparing the indices of both sexes, that is to say, the index for the men is higher. The three small groups from Arizona show respectively the following differences, -4.12;-3.50;-1.08 and the total series gives for the men 53.63 and 50.96 for the women or a negative variation of 2.67 in favor of the males. For the Southwest this difference is still negative and about the same or 2.55.

Then we come to two parallel cases with opposite signs. The 14 males from Coahuila have a mean index of 55.1 and the 3 Mexican females 54.7, hence a minute variation of — 0.4. Now the 80 men from Santa Barbara average 52.3 and the 53 women 52.7 or a positive difference of 0.4. These two variations are equal in opposite direction and too little to be significant. The total of the small series from various origins in North

America gives the following result—21 men 54.61; 14 women 51.85 or a difference of — 2.76, pretty consistent with the other negative variations already found. However, it is interesting to remark that it is less than the sexual difference previously shown for the total facial index, which was — 3.57. This means that, while the men still have a face relatively longer than that of the women, it is not quite as long in proportion as with the mandible, this then being apparently the cause of the excess difference between the upper and the total facial indices. But many of the groups compared are very small and so the difference thus found must be regarded with caution. Beside, altho all but one series, that of Santa Barbara, show a sexual variation of the same kind, it is variable in quantity from — 0.4 to — 4.12 and the statement made above is true only in proportion to the importance of the respective difference for each local group. If, for instance, we add all series from North America, the sexual variation falls to the very small negative quantity — 0.26 on account of the considerable California series which shows a slight superiority on the female side.

Moreover, the conditions in South America are the reverse of what we found North. The Paltacalo series comprises 6 men with an index of 49.07 and for two women 54.01 or a positive variation of 4.94 in favor of the females. This is the largest difference for any local group and it is contrary to all but one case previously seen. If we add to the Ecuadorian series the Punin and the Tunebo skulls we obtain for the Northwestern district 49.71 for men and 52 for women, thus reducing the sexual difference to + 2.29 but still in favor of the females who display then in South America a face relatively longer or narrower than the males, the contrary of what we found in North America.

Nevertheless, practically all mean indices but two from the southern continent are mesoprosopic, whether for males or females, which, then, belong in general to the same class regardless of small and variable differences.

What is true of averages is not entirely correct if we consider individual cases. In the Southwest, 5 skulls are chamaeprosope and all these belong to women, thus showing that these females at least have faces actually shorter than any male of same origins and this is the fact for two Colorado sites and three different localities in Arizona. On the other hand, out of 9 leptoprosope crania, 8 belong to males, one from N. E. Arizona, 7 men from Coahuila, one woman of same Mexican origin, to which must be added the only hyperleptoprosope individual, again a Mexican male. As to the middle class or mesoprosopic, it comprises 20 subjects, 12 men and 8 women. The sexual distinction is then made clearer by the observation of class distribution than by mere consideration of averages. The males show the following percentage — 57.14 meso-,38.09 lepto-,4.76 hyperleptoprosope; the females 35.71 chanae-,57.14 meso-,7.14 leptoprosope. Or, by class, we see that the chamaeprosopes are all females, the mesoprosopes 60 % male and 40 % female, the leptoprosopes 88.88 % male and 11.11 % female and the only hyperleptoprosope, as already said, is a male. This stresses beyond doubt the sexual difference displayed in facial proportions among subjects from the Southwest and Mexico.

3—*Orbital Index.*

The orbital index suggests the shape of the orbit by means of comparison of the width and height diameters. Whenever both orbits have been measured the mean index only is given.

The general average for 324 skulls from both con-

tinents is 89.47 or megaseme; 180 crania from North America belong to the same class with a mean index of 90.91 which is high, while 144 from South America reach only 87.66 or mesoseme. The extreme cases of the total series are to be found both in subjects from the Southwest, the minimum being 77.5 belonging to a man from northern Arizona and the maximum 94.35 to a woman from La Boca, Colorado, a first suggestion of sexual difference.

If we consider the three small groups from Arizona we see the females from Cañon del Muerto exceeding the average of the males by 3.38 and the same thing happens for the Cummings series with — 2.52, while the Kidder and Guernsey series shows the only local instance of all the American groups studied here of a difference in favor of the males and it is very small, only 0.63. Altogether the Arizona crania give 84.92 for 8 men and 86.23 for 6 women or a positive difference of 1.31 to the advantage of the females. This is confirmed by the Mexican skulls, 17 men 86.04 and 3 women 88.73 or again a variation of + 1.69 in favor of the females. The Santa Barbara series with megaseme averages 92 for men and 93 for women gives again one point of superiority to the female side. The difference between sexes, altho small, seems quite consistent in Arizona, California and Mexico.

If we take now all skulls from the Southwest we obtain a mean orbital index of 84.92 for 8 males and 88.43 for 10 females or a positive difference of 3.51 in favor of the women. Similarly, the 11 men from Paltacalo with 86.13 and the 3 women of same origin with 89.65 show a variation of + 3.52, and here, in Ecuador, the females again have a higher index and the difference is identical for the two series, altho so

far apart geographically. It seems, then, even with the caution necessary when dealing with small groups, that the sexual difference is clearly indicated and very consistent. We may say that the women of that ethnic type had practically everywhere more squarish orbits than the men. The females from the Upper San Juan, Colorado and New Mexico, in this case as in several others, seem to approach their sisters from Paltacalo, of Lagoa Santa type, more closely than any other group.

4—*Nasal Index.*

The nasal index expresses the proportions of the nose as measured on the skull, comparing the length or height of the nose, nasion-spinal, to the maximum breadth of the pyriform aperture.

For the two continents the average is for 320 crania 48.48 or, according to Broca's classification, mesorrhinian. The mean index for 141 South American skulls is only 47.41 or leptorrhinion while it is 49.33 for 179 North Americans or close to the Lagoa Santa race 50.07, both being mesorrhine.

In Arizona everywhere we find a difference in favor of the women, altho in varying quantity according to series, 0.98 for the subjects from Cañon del Muerto, 1.54 for the Cummings series and reaching the considerable variation of 8.66 in the Kidder and Guernsey series from Northern Arizona. All told, in Arizona we have 50.44 for 8 males and 54.15 for 6 females or a positive difference of 3.71. Adding to this the women from Colorado and New Mexico, all platyrrhine, the female average comes to exceed that of the males by 4.79, an appreciable sexual variation.

If now we consider other series, we find the 53 Santa Barbara women with an average one point superior to that of the 80 men having 48 for mean nasal index.

However, this difference becomes in favor of the males in the Coahuila group, in which 15 men average 50.01 against 3 women only 48.06 or — 1.95. The difference is again negative, but very small, for the Paltacalo series, 9 men 51.48, 3 women 51.05 or -0.43 If we join to the Ecuadorian group the Tunebo and the Punin skulls we obtain for the Northwestern district of South America a male index of 51.98 against a female index of 53.18, that is to say, + 1.20 in favor of the women, variation comparable to that of the Californian group and the Cummings series in Arizona.

The highest nasal indices among the crania of all origins considered here are found in North America and in the Northern part of the area, the woman from Piedra, Colo., 65.16 and a fragment from Rosa, New Mexico, 65.21 strongly hyperplatyrrhine and both from the Upper San Juan. Come next a skull of uncertain sex 63.63 and two women 61.7 and 60.9 from Northeastern Arizona and finally a male from Coahuila 60.

We may be allowed to say then that the females have most often a broader nose and generally a shorter nose than the males and that the most Negroid like noses seem to be found in the Northern part of the area and to belong as a rule to women.

5—*Maxillary Index.*

This index is to suggest the shape and proportions of the upper maxillary from the comparison of its maximum external diameters. The total series with known comparable measurements is small, only 48 crania in all with a general index of 119.85, 11 of which from South America average 118.73, while 37 from North America reach 120.18, in the three cases brachyuranic, as it is characteristic of this type of skulls to have a maxillary broad and relatively short.

The series from the Northern continent for which we have sufficient information comprises 23 men with a mean index of 120.17 and 14 women 120.3 or a negligeable superiority of 0.13. In Arizona it approaches equality, 8 men 119.9 and 6 women 119.91 or + 0.01. For the whole Southwest, including the females from Colorado and New Mexico, the sexual difference reaches only 1.46 in favor of the women.

On the other hand we find superiority of the males in two other groups. The Mexican series gives 120.32 for 15 men and 115.93 for 3 women or -4.39, and the Ecuadorian series 119.73 for 7 men and 117.55 for 3 women or -2.18. That is to say, a real difference appears in favor of the men in both cases, while the females of the Northern districts show indices only very slightly higher than those of the males of their groups. They are the same women with broader noses than the men, a possible correlation.

6—*Palatal Index.*

This is to indicate the proportions of the palate from the comparison of the internal dimensions. The general series with available measurements is very limited, comprising only 21 skulls in all for both continents with a mean index of 89.06. The 10 subjects representing South America exceed the average with 89.74, while in North America 11 individuals show only 88.55. The positions of the groups are then here reversed in comparison with the maxillary index. But in all cases we have brachystaphyline palates corresponding to the brachyurany of the preceding index.

The North American series show a mean index of 89.11 for 4 males and 87.60 for 7 females, all from the Southwest. The difference is only 1.51 in favor of the men. This variation is greater if we consider only the Arizona

crania where it reaches — 4.83. Contrarywise, the 7 men of Paltacalo have a mean index of 89.32 as against 91.72 for the women, or a positive difference of 2.40 showing the highest average of the females.

In other words, the palates of the Northern Women seem to be somewhat narrower than those of the men, while the contrary would be true for Southern sisters. It may be interesting to notice that in the case of the maxillary index we had for the Southwest a positive difference of 1.46 and a negative for Paltacalo 2.18, while for the palatal index the signs are reversed but the figures very similar, Southwest -1.51, Paltacalo + 2.40. There seems to be a sort of concordant relation between the variations of the indices of the two series.

7—*Gnathic Index.*

This is to show the degree of prognathism or projection of the face and this is revealed by the proportion of the basion-nasion and basion-prosthion distances. The general series of 186 skulls gives a mean index of 98.47 or fairly prognathic. Only 16 crania represent South America with a smaller index 97.15, while North America counts 170 skulls with an average of 98.59. Of these, 102 belong to males with an index of 98.34 and 68 to females with 98.98 or a small positive difference of 0.64. But if we leave out the large Californian series which has 99 for index of both sexes, the sexual difference increases to + 2.98 for the rest of the Northern Continent in favor of the women. The crania of the whole Southwest show a variation of + 2.66, the females being more prognathous than the males. This increases to 3.5 for the Arizona series and reaches 4.43 for the Mexican group. The superiority of the gnathic index for the females is still greater in South

America. In the Paltacalo series 11 men have 95.33 for index and 3 women 100.51 or + 5.18 and adding to it the Punin and Tunebo skulls we get for the Northwestern district another and still larger difference of 5.73 in favor of the women.

We find then everywhere that the women of this ethnic type are clearly more prognathic than the men of their respective series and on the whole more so than the men regardless of origin if we judge from averages. We have then here a true sexual difference consistently revealed by all groups altho increasingly as we proceed from Arizona to Mexico and then to Ecuador. This prognathism is often sub-nasal.

This concludes the survey of the sexual differences, cranial and facial, of the principal indices of these undeformed prehistoric Indian skulls from the Southwest, Mexico, California and the Northwestern district of South America. In some cases, as we have seen, the difference is clearly marked, consistent and significant; in a few others it is doubtful or of little importance. At any rate it was interesting to make a systematic study of it.

A few logical conclusions might be drawn from the preceding study.

1—In almost every case there is then a sexual difference clearly visible altho not always very large, varying in quantity with the local groups, seldom of contrary sign except in a few instances when comparing North and South American series. In some cases a gradual variation shows a North to South distribution.

2—The race represented seems probably old, hence fairly well stabilized.

3—It must be relatively pure since it is so homogeneous.

4—The population was possibly small and more or less isolated, having no apparent contact with foreign tribes and so very likely leading a peaceful life, at least until broad-headed invaders appeared.

MUSEUM EVENTS

Piano Recital by Amsden

Otto Amsden of Farmington and Chicago, who recently opened a music studio in Santa Fe, delighted an audience in the Saint Francis Auditorium on Sunday afternoon, May 20, with a piano recital that included in its sweep five of the works of Chopin, two selections from Grieg, two by Percy Grainger, two by Albeniz, one each by Scharwenka, Paderewski, Moskowski, MacDowell, and Liszt, and five of the pianist's own compositions. He proved himself an able interpreter of Chopin and a master of Liszt, whose Hungarian Rhapsodie No. 10 he played with consummate art. In his own compositions Amsden is very happy, especially on his "Yaba-Chi Night in Navajo Land" in which he handled an Indian theme admirably. Two of his three encores were improvisations on Spanish folk songs.

Commencement Exercises

The annual baccalaureate sermon to the Santa Fe High School graduates was preached in the St. Francis Auditorium by Rev. Walter Trowbridge of the Church of the Holy Faith on Sunday evening, May 20. His texts were: "A little child shall lead them," and "I have written unto ye young men because ye are strong." The

invocation was by Mrs. Alfred Parry, pastor of the Baptist church, and the benediction by Father Ubalde Meyer, O. F. M. Musical selections were by the high school chorus and the high school orchestra. The commencement exercises were held in the St. Francis Auditorium on Thursday evening.

May Exhibits

Five large paintings were added to those of J. H. Sharp already on exhibit in the Museum, five canvases of large size revealing a new Sharp, a more mature and mellow Sharp, whose color as it has grown more brilliant has also become warmer, and whose composition less detached is more concrete. Two flower compositions are exquisite in their color harmonies and arrest attention by their sheer beauty. Three paintings are interiors in which the artist solves successfully the problems of lighting and atmosphere and at the same time presents pictures of Indian domesticity that are charming.

Miss Gertrude M. Young, head of the Art Department of the University of Arizona, who has been spending her summers in Santa Fe but will be on the New England coast this vacation season, is displaying an alcove of landscapes that prove meticulous workmanship, the water colors especially possessing merit. The scenes are Southwestern, mostly local. Fremont Ellis surprises from time to time by a change in color key. Four landscapes just from his brush sparkle with sunlight and color in high pitch. Will Schuster hangs an excellent portrait of Arthur Ficke, the poet. Shuster's work is always earnest and sincere and he seems destined some day to a high place among Southwestern artists. Says the *Santa Fe New Mexican*: "Tom Scudder is developing into a portrait painter also. An interest-

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ing portrait of a friend as well as an impression of the penitentes are shown by him. The modernists are always decorative and intriguing. There are two Earth Rhythms by Raymond Jonson, a landscape and nude by Nash, Trees by Bakos, flower and still life by Walker and a still life by Nordfeldt. Wladyslaw Mruk has three fresh colorful water colors and Carl Redin is showing a small group of scenes near Albuquerque. A fire screen by Edward Eckland is unique and decorative."

ART IN THE SOUTHWEST

Walter Ufer and His Work

There is color on the cover to-day to satisfy the most exacting; and it is the genuine sunlight of the great Southwest. The scene is the artist colony at Taos, New Mexico, and the building is Mr. Ufer's studio. The glowing sand, the sage-brush, the blue of the distant mountains, and the green of the trees, bathed in an air as pure and clear as the air of Sicily or Greece, all are there. Only one thing is missing; the artist has painted a Mexican instead of an Indian, and the Indian is his special study. When his exhibition was held recently at the Macbeth Gallery in New York, the critic of *The Evening Post* wrote of him and his milieu: "Mr. Ufer was one of the first members of the art colony in Taos, which is now frequented by such artists as John Sloan, Maurice Sterne, Gustave Bauman, and D. H. Lawrenec, the novelist. He has made a thorough study of Indian life and customs, which he in turn depicts in his paintings. Mr. Ufer said to-day that the traditions of the American Indian, due to the lack of a written language, will soon disappear under the pressure of Americanization. 'The Indian has lost his race pride,' he said. ' He wants only to be American. Our civilization has terrific power. We don't feel it, but that man out there in the mountains feels it, and he can not cope with such pressure. But if America is ever to have a national art it will come from the Southwest, and it is a shame that the art which already lives there should die.' During his fourteen years' residence in Taos, Mr. Ufer has been in close

association with the Indians of the pueblo, which is three miles from the town, and houses 600 persons. It was four years, he said, before he was able to gain their confidence, due to the resentment they felt toward the white men who had exploited their romantic appearance and sensationalized their ceremonials. 'The Indian is not a fantastic figure,' continued Mr. Ufer. 'He resents being regarded as a curiosity—as a dingleberry on a tree. He is intelligent and a good business man. He reads the good magazines and newspapers, and he is quick to challenge any false statement about himself or his life.' Mr. Ufer feels that religious influence has very little to do with the Indian's Americanization. 'While he is officially a Catholic, he is at heart a sun worshiper, and after the opening ritual of the Catholic service proceeds promptly into his pagan dances and chants. The Corn Dance, the Reindeer, and the Eagle Dances are still regularly performed in Taos.' . . ." In *The Catalogue* for his exhibition Mr. Ufer has inserted a foreword that gives a prophetic outlook on American art: "I paint the Indian as he is. In the garden digging—in the field working—riding among the sage—meeting his woman in the desert—angling for trout—in meditation. In my work out here I try to use him merely as a model—placing him in the sun or indoors—with his animals, as if I were in Italy or Northern Africa trying to build up an art. I believe that if America gets a National art, it will come more from the Southwest than from the Atlantic Board. Because we are really different from Europeans, and the farther away from European influence, the better for us. We already have too much of Indian blood within our veins to be classed with Europeans, tho we are a white race. They are a mixture over there, but we are a different mixture. The strong

beauty that the Southwest holds, connected with what the early Spaniard found here when he conquered these people, is what holds us out here rather than painting fishing-smacks in the east or the Pacific slope. Gradually, and with the Indian here, I believe we can give much to American Art in the future. The Southwest has gradually gained—tho it is still wild—by taking within its fold the artist. I mean by this every kind of artist."

SOUTHWESTERN PAINTERS

Annual Exhibit at Taos

The Harwood Studio at Taos announces the annual exhibit of Taos artists. The opening took place on Thursday, May 17, and the exhibit is to continue all summer, with monthly changes, however.

New Artist for Taos

The arrival of Frank T. Hutchens in Taos from St. St. Petersburg, Florida, is announced. He has purchased a home in Taos for himself and Mrs. Hutchens.

PAINTING AND SCULPTURE

Wants American Paintings

Homer Saint Gaudens, director of the Carnegie Institute at Pittsburgh, Pa., on his recent visit to Madrid, to obtain paintings for the next Carnegie Interna-

tional exhibit, was urged by Premier Rivera to have American artists send a worthy exhibition of paintings to the Ibero-American exposition at Seville, which opens in October, and at which New Mexico is represented by Lansing Bloom of the School of American Research and Museum of New Mexico.

Exhibit by Nicolai Fechin

Nicolai Fechin of Taos, a brilliant figure like Leon Gaspard, a Russian by birth, who has been in the United States only five years, recently exhibited in Los Angeles portraits, figures and still lifes painted in New York, and his New Mexico canvases "where he found a new joy in the earth-yellow walls and homely disorder of grasses, that Taos affords." His still later California pictures were also included. Arthur Millier, painter and etcher, writes in the Los Angeles Times as follows of the Fechin exhibit: "Many elements go to make Fechin the brilliant figure we find him today. Underlying this flashing, sketchy technique is an arduous, prolonged study of anatomy. This joyous painter must have toiled in the dissecting room no less attentively than he did before the living model. Now he stands before us in his works, an artist who dashes into his interpretations with flying brush and what Mr. Cortissoz would doubtless refer to as 'incomparable bravura.' The art of Nicolai Fechin is intensely modern in that it is a development of the sketch, a swift, broad summing up of a keen impression. It is technically possible only to a man thoroughly at home with his tools. Only the salient points are emphasized. Each work, as a whole, seems gracefully casual, as though brushed in with almost nonchalant ease. Closer examination reveals a closely worked-up surface, a result by no

means so easily arrived at. The idea held throughout is swift; the actual execution is far from impatient. Fechin bears within himself a feeling for biting colors. He can use pretty color here and there, but he always saves it by some cello-tone of gray. There are more profound artists but there are few who have so completely mastered their own language. We frequently hear an art exhibition as a 'riot of color.' There is enough color in the paintings by Nicolai Fechin to create a riot of feeling in the spectatorial breast, but one quickly discovers that the glowing hues are finely ordered by a painter-magician in perfect control of an art unmistakably his own." It is the good fortune of Santa Fe and Taos that they have had such consummate Russian artists as Nicolas Roerich, Leon Gaspard and Nicolai Fechin create works of art immortalizing their charm.

Museum and University Co-Operate

Wittenberg University has entered into a co-operative arrangement with the Dayton, Ohio, Art Institute, in summer classes to begin June 18. Martha K. Schauer, director of the Dayton Art Institute's summer school, will have as her assistants Edward R. Burroughs and Chester R. Nicodemus. Wittenberg will recognize the work done in the Art Institute in granting degrees.

Pratt Institute Art Director

After 41 years as Director of the School of Fine and Applied Arts, of the Pratt Institute, Brooklyn, Walter Scott Perry has retired and will be succeeded by James C. Boudreau, now director of art of the Pittsburgh, Pa., schools. Boudreau is a New Englander, graduate of the Massachusetts Normal School. Another Pratt

Institute man, Leon L. Winslow, as director of art education in Baltimore, Md., is revolutionizing the art department of the Baltimore schools.

Culture Centers the Vogue

Even Boston has fallen for the culture center idea and its aristocratic School of the Museum of Fine Arts for the first time in its history announces a summer school from July 2 to August 10. Pennsylvania State College announces a similar summer session. The Thurn School of Modern Art will establish a culture center this summer at Woodstock in the Catskills, and Milwaukee will have a summer session of its School of Art on the shores of Lake Michigan, from June 25 to August. The Museum Library is in receipt of scores of other similar announcements from all over Europe and America to answer the demand of the thousands of thoughtful, studious men and women who desire to spend summers in earnest study rather than in the diversions of the ordinary seaside or mountain resorts.

New Mexico Artists at Buffalo Exhibit

The catalogue of the 22d annual exhibition of selected paintings by American artists at the Albright Art Gallery, Buffalo, N. Y., which closes on June 24, lists the following who have painted at Santa Fe and Taos: George Bellows, Ernest L. Blumenschein, Randall Davey, Robert Henri, Leon Kroll, Julius Rolshoven, John Sloan, and Walter Ufer. The paintings reproduced in halftone in the catalogue include: Rolshoven's "Donna Tosca," Bellows' "The Bridge, Blackwell's Island," Henri's "Portrait of Miss Mary Patterson."

Whistler on Critics

"No! Let there be no critics! They are not a necessary evil, but an evil quite unnecessary, though an evil certainly. Furnished as they are with the means of furthering their folloishness, they spread prejudice abroad. But what does it matter! The farce will go on, its solemnity adds to the fun."

Santa Fe Fiesta

Announcement is made of the dates of the Santa Fe Fiesta to open with the Conquistadores Ball on the evening of August 30 and to continue August 31 and September 1. As September 2 is Sunday and the following day is Labor Day, this will add two holidays to Fiesta time.

Not Coming to Santa Fe

Because of Denver's ambition to build up its own culture center as exemplified at Indian Hills, under the directorship of J. A. Jeancon, there will be no summer session at Santa Fe this year of the Chappell Summer School of Art. The courses will all be given at Denver.

PERSONAL MENTION

Address by Neil M. Judd

Retiring after two years as president of the Anthropological Society of Washington, Neil M. Judd, curator of American archaeology in the United States National Museum, addressed the society at its annual meeting,

on "The Present Status of Archaeology in the United States."—*Science.*

Dr. A. V. Kidder from Yucatan

Dr. A. V. Kidder has returned from a visit of several weeks to Chichen Itza and nearby archaeological sites where the Carnegie Institution is carrying on research work under Dr. S. G. Morley and Earl Morris.

To Visit Museum of Europe

Dr. H. B. Hungerford of the University of Kansas is in Europe on an eight months visitation to European museums. The month of May he is visiting the British museums, going later to Paris, Brussels, Amsterdam, Berlin, Halle, Copenhagen, Upsala, Prague, Vienna and Budapest.

AMERICAN ARCHAEOLOGY

Monte Alban to be Excavated

A party of investigators, headed by Alfonso Caso, archaeologist, and Miguel O. de Mendizabel, ethnologist, representing the *Mexican Historical Review*, will begin a study, before the end of the current year, of the ancient fortified mountain city known as Monte Alban near the city of Oaxaca. Monte Alban is part of the relics of strange prehistoric builders who modified entire mountain skylines by carving terraces and erecting pyramids till they looked like scallops on a petticoat. Practically nothing is known of the race who conceived the unique notion of leaving its mark notched on the

upland horizon, and the archaeological city was old and deserted when the Spanish came to subdue Oaxaca along with the rest of Mexico. Today, swathed in its age-old padding of earth and vegetation, the site of Monte Alban seen from its highest point suggests the work of giant moles who burrowed and upheaved on a geometrical plan. The city whose angles are now curves, whose square pyramids are grassy mounds, and whose sunken terrace gardens are dimples in the earth, looks down upon modern green and white and pink Oaxaca nestling in the sunny valley 1000 feet below and five kilometers away. The ridges are levelled off at different heights, and a series of mounds and terraces result that are as confusing in their number and extent as the layout of a large city. The mounds were flat-topped pyramids on which superstructures once stood, as stumps of walls sticking out of the covering of grass still show, and there are many remains of fortifying walls, forming battlements for terraces that overlooked the approaches to the mountain city. There are series of sunken rectangular terraces surrounded by ancient structures raised on sloping sides that give the quadrangles the appearance of modern football fields with the grandstands all around. Piles of stone and weed-smothered earth left in the centers of these enclosures suggest that they were altars. No systematic excavations have been made in Monte Alban, but the evidence of occasional haphazard ones is significant. A pyramid structure that has been probed by a series of tunnels in a search for hidden treasure reveals that it is built up of seven artificial levels of broken stone filled with earth and capped by pavements of lime concrete. The recent earthquake which shook all Mexico brought down some of the rock filling parts of these tunnels. In the

sides of several terraces or mounds there are ancient sepulchres that have been sacked, but the corbelled stone-lined vaults remain, showing their great similarity to Maya architecture farther south. Narrow entrances leading to the tombs are picture galleries lined with stone slabs carved with human figures that perhaps represented persons who were buried there in ancient times. There are also columns bearing symbols and date hieroglyphics of the typical Maya dot, bar, and head code. There are scattered remains of great round columns and enormous monoliths weighing tons that may have been door-lintels or other parts of buildings, and some fragments of stone lying about bear portions of carved serpent motives. Large stone mortars and pestles for grinding corn show that life on the mountain top had its domestic angle, too, and that there probably were tortillas. Innumerable broken fragments of pottery heads in the debris round about show exceptionally fine artistic execution. The features on a few fragments are realistic but conventionalized till the result is beautiful and symmetrical, indicating a sophisticated viewpoint of art. Some people in the region claim that Alban was the fortified borderland between the land of the Zapotecs, who built the ancient city of Mitla some 70 kilometers away, and the Mixtecs, to whom Monte Alban is ascribed, especially by modern Mixtecs living in the villages below. On the other hand, modern Zapotecs claim Monte Alban as theirs. Mitla and Monte Alban, although very close together, are radically apart in style and perhaps in the time of their building. Mitla is one of the few archaeological cities known in Middle America that are not built on a series of pyramids as substructures, and there is only one true pyramid on the site. Mitla's most striking feature is the geometrical

mosaics of stone that make up its wall panels and friezes, which show a Mexican or northern influence. Monte Alban, on the other hand, is built entirely on pyramirs and terraces, and shows in its corbelled funeral vaults and carved stones a strong Maya influence. Dr. Manuel Gamio, leading Mexican scientist, who has visited in Santa Fe, believes it possible that Monte Alban may even have been a young Maya city during one of the early steps in the evolution of that race, or may at least be an important link in its history. There seems no doubt that the enormous amount of information there is ready to tap in the many well-known but unexplored archaeological sites of Mexico will some day clear up many points in American prehistory.—Emma Reh Stevenson in *Science Service.*

Home Life of Mound Builders

Chapters from the home life of primitive mound-building Indians are being pieced together by George Langford, as a result of excavations in a group of curious ancient pits surrounding two ancient mounds on the Fisher farm near here. Evidence so far unearthed indicates that the Indians who buried their dead in the mounds built their dwellings in this circle of shallow, saucer-like depressions around them. Details of their daily lives can be read from thousands of things taken out of the pits, such as broken bones of the game they ate, weapons and tools of stone, bone, horn, and clam-shell, fragments of pottery, pendants and other ornaments, and even from the bones of their dead, found buried rather haphazardly all over the place. The pits themselves were scraped to a depth of three or four feet beneath the original ground level, and the earth thrown out to make a raised rim two feet or more high;

their inside diameter ranges 15 to 30 feet. How the Indians roofed them is not known, for no trace of either covering or of supporting central posts has been found. They were warmed by central fires, for the largest deposits of ashes are always found in the middle of the pits. A note on mound-builder squaw housekeeping is furnished by numerous holes, about arm-length deep, sunk into the ground both within and outside of the pits. These frequently contain quantities of mussel shells or the remains of hoards of corn; they were evidently the Indian equivalents of cupboards or refrigerators. Other holes served as garbage cans. That these pits were occupied for many generations is evidenced not only by the large quantity of objects of human use that have accumulated in them, but also by the fact that the tools and weapons are not all of the same workmanship. There are two distinct type of stone implements, and two or more varieties of earthenware pots, hinting at the probable displacement of one tribe by another. The human burials are of three types, indicating a succession of at least three peoples. The last tribe to occupy the pits had contact with white men, for some of the burials have glass beads and other objects of European manufacture associated with them. Two arrowheads of iron, a metal unknown to pre-Columbian Indians, have also been found. All told, 50 pits have been discovered and measured. Thirty-four of them are arranged in a circle around the two principal mounds that existed at this site, as though their purpose was partly defensive. Fourteen others form another group, and a lone pair stands off at a little distance. Much work remains to be done on these pits, though the exploration of their mounds has been completed. Mr. Langford, whose researches have been

formally reported to anthropological societies, is not a professional scientist, but a factory executive. In his principal recreation, he has had the volunteer assistance of two of the members of his factory staff, Albert Tennik and Thomas C. Dudley.

Maya Chronology

Maya hieroglyphs carved on a commemorative slab over 1200 years ago, giving the exact date of a spring equinox, may serve as an important check on the various methods used by scientists in correlating Mayan and Christian time. The writing was recently translated by Enrique Juan Palacios of the Direction of Archaeology of the Mexican Ministry of Education. It is inscribed on a stone stela found on the main terrace of the ancient ruined city of Santa Elena, Chiapas, within the area that was once the brilliant scene of the Old Maya Empire which flourished during the first 800 years of the Christian Era in southern Mexico and Central America. The stone was found a year ago, but until the present time only the dedicatory date had been deciphered. This important date of the "unveiling" of the monument, which also fixed the date of the city, was carved out in full by the ancient Maya sculptor, and not abbreviated as is often the case, adding to the worries of the modern scientists and detracting from the certainty of translation. There are numerous methods of reading Maya dates that have been worked out by archaeologists, all differing to a greater or less extent. The method used by Palacios is one devised by the Maya chronologist Juan Martinez Hernandez, of Merida, Yucatan. According to his system of date-reading, the inaugural date of the stone, 2 ahau 18 xul

in Maya, falls on June 14, 674 A. D. In addition to the unveiling date on the slab there are other groups of Maya symbols that tell about the spring equinox of that year and when it occurred. First there is the symbolic representation of the equinox itself. The ancient writer on stone, wishing to leave no doubt in his reader's they had calculated and were writing down, carved a picture of the Maya "sun sign," which is also the "day sign," between two groups of crossed bars in an exactly symmetrical position. He added in explanation that this event occurred on 9 cib 14 uo, or on the 14th day of the month "uo" on a day which was called "cib." The system of rotation of days and months used by the Mayas fixes the date. Another group of symbols in connection with the equinox sign expressed the simple number 84. Mr. Palacios found that by counting back 84 days from the date of the unveiling, 2 ahau 18 xul, or June 14, 674, he came to the other date, 9 cib 14 uo, or March 22, 674 A. D., which was the date of the equinox in that year, an event which had been pictured by the artist. This appears to be a check on the system of date-reading devised by Juan Martinez Hernandez, and Palacios points out that any other of the methods of reading, such as those by Dr. Sylvanus Morley of Santa Fe, N. M., or Dr. Herbert Spinden of Harvard, or by Eric Thompson and T. A. Joyce of England, would lead to entirely different dates. During the past year Palacios deciphered another difficult date on a similar stela at the newly discovered Maya site of Etzna, Campeche, which was fixed at about 472 A. D., a reading accepted by Dr. Sylvanus Morley, chief of the archaeological expedition of the Carnegie Institution at Chichen Itza, Yucatan, who visited the site of Etzna. In addition to the usual dedication dates, Maya stelae generally contain much unreadable material but which

appears to allude to various astronomical phenomena and important events in the tropical year. While this information is engraved on stone at the regular time intervals when the Mayas were accustomed to erect the monuments, it is believed to refer to events that occurred in between the periods, and Mr. Palacios is of the opinion that many other stelae would resolve themselves as the one at Santa Elena did.—Emma Reh Stevenson in *Science Service.*

Excavating on St. Lawrence Island

The belief that ancient men bridging the gap between Asia and America may have left clues to their identity and their manners near Bering Strait is taking Henry B. Collins, Jr., ethnologist of the U. S. National Museum, to St. Lawrence Island, which lies just south of Bering Strait. This ethnologist will be the first scientist to excavate in the island, though Eskimos living there have dug up a number of very old ivory harpoons and ornaments used by their forerunners. Mr. Collins will spend most of the summer locating ancient Eskimo villages and digging where excavation seems most likely to reveal traces of early inhabitants. St. Lawrence Island would be rather south of the direct line of travel across Bering Strait, Mr. Collins said, in discussing his expedition. But some of the prehistoric men who found their way across the short cut between Asia and America, thousands of years ago, may have wandered to the island or stopped off there. At any rate, it is known that men have inhabited the island for many centuries. St. Lawrence Island is about 100 miles long, but it is now inhabited by only a small group of Eskimos. Prior to 1880, the population was much larger, but in that disastrous year the Eskimos drank a good deal

of bad whiskey and neglected to hunt and store up a food supply. When winter came, hundreds died from famine, and the island never regained its former importance. Mr. Collins plans to spend some time in conducting excavations along the mainland of Alaska just south of the Arctic Circle and in making studies of the physical type of the natives.

PHYSICAL ANTHROPOLOGY

Age of Man in America

Human beings lived on this continent during the first interglacial period, about 400,000 years ago. Dr. Oliver P. Hay, paleontologist of the U. S. National Museum, thinks this quite possible. In a lecture at Washington D. C., he laid before an audience of geologists and other scientists his reasons for assigning so great an age to man in America. The human bones and man-made implements found in Florida are associated with the remains of extinct animals known to have existed during the so-called Aftonian time, Dr. Hay stated. These animals included a very primitive type of elephant, a giant beaver, an enormous armadillo-like creature, several species of horses, camels, etc. There were also numerous animals of species still living. Three times after this period the ice advanced and retreated again, over the northern section of the continent, and with each advance a number of the animal species became extinct. The surviving animals showed no changes; in fact, Dr. Hay states, there has been no detectable evolution in any mammal since the beginning of the glacial period. Dr.

Hay bases his belief in the great antiquity of man in America on the high proportion of extinct species represented among the fossils in the Florida diggings. The older the stratum, the higher the percentage of extinct species to be found in it, he declares; and the Florida collections show far more extinct species than the later interglacial strata show anywhere else in the world. Dr. Hay is also inclined to disagree with the opinion held by some anthropologists that man has evolved rapidly during the last 100,000 years or so, passing through the low-browed Neanderthal stage on the way. Inasmuch as the bones of all other creatures now living are indistinguishable from fossil remains of the same species nearly half a million years old, it is hard to see, he says, why man alone should have undergone such radical physical changes. He is more inclined to regard Neanderthal man as a separate species that became extinct, and to hold that man of essentially modern type, so far as his physical make up is concerned, runs back indefinitely toward the beginning of glacial time.—*Science Service.*

Deafness in Pre-Columbian Peru

The determination of the causes of deafness in an ancient race of people, such as the pre-Columbian Peruvians, is well worth undertaking. The subject has already received some attention. Burton* has given an extremely useful survey of the nature of aural exostoses in general, with a brief account of otosclerosis. The aural exostoses in the external auditory meatus in

* Burton, Frank A., 1927, "Some Considerations on Prehistoric Aural, Nasal, Sinus Pathology and Surgery." Santa Fe, N. M., pp. 1-38, Figures 1-17.—*El Palacio Press.*

pre-Columbian crania from Peru are often definite osteomae with a typical ivory-like luster, and extremely hard and dense. These never grow very large, and I do not know that a single osteoma ever closes the auditory canal, but the presence of three tumors does close the canal completely, on one and on both sides. In addition to this the walls of the auditory canal itself often become swollen and sclerotic and close the canal, thus producing deafness. The assignment of strain, brought on by the mastication of tough food, as a cause of exostosial growths, and possibly the cause also of otosclerosis in general, requires an anthropological survey for confirmation. Infections played a part in deafness, for I have seen cases of pre-Columbian middle ear infections. Aided by a grant of $300 from the Committee on Scientific Research, American Medical Association, a more exact investigation of the ancient conditions will be undertaken. Dr. L. C. Kinney, of San Diego, will do the roentgenological work on the pre-Columbian crania, and I have at my disposal scores of roentgenograms of unopened mummy-packs.—Roy L. Moodie in *Science*.

SOCIOLOGY

Still Paying Penalty for Slavery

Hookworm, malignant tertian malaria, bacillary dysentery, and blackwater fever are some of the penalties the South is still paying for the importation of African slave labor, Rear Admiral Edward R. Stitt, Surgeon General, of the U. S. Navy told the Society of

Tropical Medicine meeting recently. Of the many parasitic diseases with which Africa is afflicted, hookworm is the most serious in its transplanted home in the southern states. A restricted area around Charleston, S. C., is infested with the parasitic worm that is responsible for elephantiasis, a disease widely prevalent in Africa. Sleeping sickness, however, though undoubtedly imported with many slaves, has never taken hold in this country on account of the absence of the tse-tse fly, its intermediate host. "If, as I am convinced," added Admiral Stitt, "yellow fever was introduced through slave ships into the United States by infected mosquitoes, which Stokes has recently shown can transmit the disease after three months, we have here a curse greater than any of the curses which the Egyptians suffered through their enslavement of the Jews."—*Science Service.*

GIFTS AND BEQUESTS

Will of James B. Ford

Among thirty-four bequests to public institutions by James B. Ford there is a bequest of $50,000 to the Museum of American Indian and $100,000 to the American Geographical Society.

In Memory of Woolworth

Mrs. Charles C. F. McCann and Mrs. James W. Donahue have given $100,000 to the Museum of City of New York in memory of their father, the late F. W. Woolworth.

Bulk of Fortune to Public

More than $10,000,000 is distributed under a court decree in the estate of Henry Buhl, Jr., a Pittsburgh businessman and philanthropist, the bulk of the fortune going to public and charitable institutions.

Rockefeller Foundation

The Rockefeller Foundation last year expended $11,223,124 from income and capital.

LINGUISTICS

Culture Center in Language at Yale

The languages of the world, ranging in time from ancient Assyrian and Hittite to the newest American English, and in geography from India to Ireland, will be offered for the study of interested scholars this summer at a special Linguistic Institute to be held at Yale University from July 9 to August 17. Thirty-eight courses are outlined, including Sanskrit, Pali, Old Provencal, Vulgar Latin, Gothic, Old Norse, and many others. Special stress is laid on two courses to be given by Prof. Joseph Dunn, of the Catholic University of America Washington; these are in Early Irish and Early Welsh, and will be based on a number of very ancient inscriptions and manuscripts. The institute is to be held under the auspices of the Linguistic Society of America.

EGYPTOLOGY

Egyptian Vase Factory

A mysterious Egyptian site occupied during the third dynasty, 2900 to 2850 B. C., has been found in the northern hills of the Fayum region. Near a gap in the hills which gives easy access to the Upper Desert and where even now there is the camel track to Giza, are great gypsum-plaster works. Here have been found immense quantities of sherds, pots, and typical flint tools which had been used in the industry.

The gypsum outcrop is of remarkable purity, and of a depth of 15 feet. There is no sign of the burning which would have been necessary to convert the gypsum into plaster, and evidently the material was exported in a raw state. Alabaster vases and dishes were evidently also manufactured on the spot in very large quantities. This quarry probably provided the fine quality gypsum plaster used at Sakkara, but none of the fine alabaster vases which were made in such numbers on this site have yet been discovered in the tombs of the Old Kingdom. The so-called alabaster vases known from this period are of different and inferior material. What was the purpose and the destination of these fine vases remains for the moment a mystery.

Remains of the stone circle shelters used by the workmen are found nearby. These are the earliest dated examples of the structures yet found in Egypt. It is possible to see where the fires of the workmen have blackened the roofs of the shelters which they made by under-cutting the soft sandstone. The circular rock-cut basins which they used still drip water over the scarp edge.—E. N. Fallaize, Secretary of the Royal Anthropological Institute of London.

LITANY FOR NEW MEXICO

Bless God for the day!

Bless Him for the wide clear-flowing
New Mexico morning,
Poured round the shadow pools,
Gilt on the cumbres.

Bless Him for the nooning,
When the white thunderheads with sails full bowing
Sleep on the three wind rivers.
Bless God and praise Him
For the west-sloping hour of siesta
Under domed cottonwoods,
That in a rainless land make ever the sound of rain.

Bless Him for the evening;
For the releasing cool hands of the wind
On the flushed headlands;
For the lilac and larkspur veils
Let down by the mothering mountains
Between the work that fails and the dreams that linger.
Bless Him for home-coming sounds—
The window-shine on the loma,
For the welcoming flame and the savory smell
And the snuggling cry of the children.

Bless God for the night!

Bless Him for the keen curled sickle that reaps
The saffron meadows of the sun's late sowing;
For the full-shaped globe of wonder,
Pacing the eastern ranges
Oh, bless Him more than all
For the ever-recurrent orb that emerges
Between the light that goes and earth's on-coming shadow.

Bless Him for shared sleep,
For the midnight's healing fountain,
For the companionable cock-crow, warming
The sleeper back from dreams to the pastures of morning.

Bless God for the dawning,
For the earth collecting
Darkness again to her breast,
For the hills resounding
Clarion blue to the sun's relucence.
Bless God and praise Him
With exceeding thanksgiving
For His gift of the day and the night!

—Mary Austin in *Poetry* for June.